The following text provides a transcription of Alternative Financing Options for Energy Projects webinar. The text is taken verbatim from audio presented by Doug Culbreth of the Federal Energy Management Program (FEMP), Joyce Ziesler of Energetics, Inc., Chandra Shah of the National Renewable Energy Laboratory, and Julie Kelley of Oak Ridge National Laboratory. Introduction provided by Bill Raup of the Federal Energy Management Program (FEMP).

Introduction – Bill Raup

Hello and welcome to the Introduction to Alternative Financing for Energy Efficiency and Renewable Technology training course. My name is Bill Raup and I am the DOE/FEMP Program Lead for the Energy Savings Performance Contract Program. This training focuses on how to use alternative financing tools to plan and implement energy and water saving measures and renewable energy systems in your Federal facility. Information will be provided on Power Purchase Agreements, Energy Savings Performance Contracts and Utility Energy Service Contracts. David McAndrew coordinates the Utility Energy Service Contract and Power Purchase Agreement programs at FEMP headquarters. More detailed on demand training on ESPCs is available as well as a live webinar on UESCs. FEMP also offers UESC and ESPC workshops throughout the year. Please check the FEMP website for dates and locations. We hope you will utilize the convenience of this training method to its fullest intent. If you should need to ask a question or have issues of concern, please contact the Federal Finance Specialist in your region. Their contact information is provided for you during this training. Additional information and resources on all programs is also available on the website. After you have completed this training, you will have the opportunity to enter your contact information, answer a few training related questions and complete an evaluation form. Once you have completed these steps you will automatically receive a training certificate for completion of the course and FEMP will have a record of your attendance. Thank you for your participation and we hope that you enjoy the training.

Slide 1 – Doug Culbreth

Good morning and welcome to the Department of Energy's Federal Energy Management Alternative Financing Options for Energy Projects webinar. My name is Doug Culbreth. I'm the federal financing specialist for FEMP in the Southeast Region and Europe. If you wish to get clarification on a topic, you are welcome to call a list of contacts, which I will provide later. Today, we will have multiple complicated topics, so I would suggest that in order for you to get the most out of this training, please do not multitask. I personally am not very good at it and I doubt most people are either, so because we are talking about multiple topics, I would ask that you please focus on this and this only.

Slide 2 – Doug Culbreth

Today, on our webinar agenda, we're going to talk about energy savings performance contracts first and have questions and answers, then we're going to Power Purchase Agreements in the first half of that, and we're gonna have a short break, and then we go back and finish the second half of Power Purchase Agreements and then we will finish with utility energy service contracts and questions and answers at the end.

Slide 3 – Doug Culbreth

Our instructors today are a very talented trio of instructors. First, we have Joyce Ziesler with Energetics and Joyce was formerly the contracting officer for the Department of Energy's ESPC IDIQ contract. Secondly, we have Chandra Shah, who will be talking about our purchase agreements. She is a senior project leader with the National Renewable Energy Laboratory, and finally, we have Julia Kelley, who will be talking about utility energy savings contracts. She is the FEMP team lead at Oakridge National Laboratory.

Slide 4 – Doug Culbreth

Just for those of you who may not be familiar with the Department of Energy's Federal Energy Management Program, let us take a moment and review the mission of the FEMP program. The Department of Energy Federal Energy Management Program's mission is to facilitate the federal government's implementation of sound, cost-effective energy management and investment practices to enhance the nation's energy, security and environmental stewardship. FEMP provides assistance through project transaction services and this is where the alternative financing options come in, applied technology services and decision support services.

Slide 5 – Doug Culbreth

We'd now like to go over the contacts that you can use to get the information you need for the type of activity that you would like to carry out at your particular facility. First and foremost, we have the federal financing specialist. That is your first line of information. If you're interested in any type of alternative financing, which we're discussing today, please contact the specialist that you see on your slide there. There are four of us and we have our territories in the United States and internationally, as well, because the energy savings performance contracts do extend worldwide. So we have Scott Wolf and myself, and Gordon Drawer and Tom Hattery.

Slide 6 – *Doug Culbreth*

And for the Power Purchase Agreements contacts, you have, certainly Chandra Shah, who is going to make a presentation today, and Tracy Logan.

Slide 7 – Doug Culbreth

And finally, we have the utility energy savings contract contacts. You see a variety of those right there today. Julia Kelley is going to be our presenter and certainly would be one of the first persons you'd want to call if you're interested in a UESC.

Slide 8 – *Doug Culbreth and Joyce Ziesler*

And now we'd like to start by asking Joyce Ziesler to lead us in our discussion on energy savings performance contracts. Joyce.

Yes. Good morning, everyone. ESPC legislation was passed in the mid-1980s, so we have some experience under our belts. This contracting method provides the federal agencies with the opportunity to think outside the box. Innovation and creativity are important tools in going forward with an energy project, so let's take a look.

Slide 9 – Joyce Ziesler

We have some definitions here. ESPCs are contracts that allow agencies to procure facility improvements with no upfront capital costs and without special appropriations from congress. They select a contractor, which is a pre-qualified energy service company, or ESCO, develops and implements and finances the project. While designing the project for energy reduction usage, the ESCO must also guarantee a level of savings that will pay back the investment costs over term. The agency pays for the project with the savings from the installed ECMs and related savings, such as operation and maintenance.

Slide 10 – Joyce Ziesler

This slide shows how the money flows. In the absence of adequate appropriation dollars to fund a comprehensive energy project, this is how it works. The improvement could create savings for the agency for energy and energy-related savings. The agency pays the ESCO, utilizing the real-life savings from the utility budget and the ESCO in turn then pays the financier.

Slide 11 – Joyce Ziesler

The four major and mandatory legislative requirements for ESPCs and the savings guaranteed by the ESCO. No. 1, these savings must exceed the payments from the agency to the ESCO each year, meaning that you can't make excess payments to the ESCO during any particular year of the project development or performance period. Annual measurement of the installed ECMs and verification of the savings is mandatory. And last, but not least, the contract term cannot exceed 25 years. This means that the day that the contracting officer signs the task order, the clock starts ticking. Therefore, the last contractor payment cannot be more than 25 years later. Just a word of caution. Facilities should consider possible overruns into construction periods that would make the project to exceed the 25-year term. Give yourself some wiggle room, as much as a year, perhaps, in your planning and order to not exceed what the law allows.

Slide 12 – Joyce Ziesler

So now let's take a look at some of the legislation. Federal agencies use of ESPCs as authorized is encouraged by a series of legislation and executive orders. The first was the ESPC, when it was first enacted was the National Energy Conservation Policy Act. This act added a Title 8, which gave federal agencies the authority to enter into shared energy savings contracts with private sector ESCO. The Energy Policy Act of 1992 further amended the EPAct to authorize federal agencies to execute guaranteed savings contracts or ESPCs with the private sector. EPACT directed the DOE to develop an ESPC regulation. The final ESPC rule was published on April 10th, 1995, as the DOE rule 10CFR436, subpart B. The latest ESPC-specific legislation is the energy independence and security Act of 2007. Among other provisions, ISA gave

permanent reauthorization to ESPCs. Over the last 11 years and 200-plus projects under our belt, we have set some precedence in the board and administration of the ESPC contracts and we share that knowledge, as we are today, with the private sector, as well as the federal sector.

Slide 13 – Joyce Ziesler

Using the DOE IDIQ helps to streamline the contracting process. Agencies, you may do a standalone or an individual contract quite specific, but it's business as usually and takes a very long time when compared to using the DOE IDIQs, or for that matter, other IDIQs, such as those awarded by the Army Corp of Engineers or those on the GSA schedule.

Slide 14 – Joyce Ziesler

ESCOs have demonstrated the capability to provide performance-based energy projects. The DOE IDIQs awarded in December of 2008 provides worldwide coverage and a list of 20 energy conservation measures, the last being future ECMs, which provide inclusion of advancing technology. That was put in the IDIQ contracts for any developing technologies in the future. We wanted to be sure to encompass and allow agencies to be innovative and creative in energy conservation measures at your site.

Slide 15 – Joyce Ziesler

The DOE FEMP contracts have five phases of project development and administration of the ESPC contracts. Our Phase 1 is acquisition of project planning, which lays a solid foundation for the acquisition. Phase 2 is the receipt of preliminary assessment in ESCO selection. Flexibility is given by the DOE IDIQ relative to evaluation and selection of the ESCO. The process is an important part of the acquisition planning. Our Phase Three, negotiation and awarded the task order is a very busy and important phase of the contracting process. Phase 4 is the design and the construction of the project and the project acceptance by the agency contracting officer. And Phase 5 is the performance period or administration of the long-term contract.

Slide 16 – Joyce Ziesler

Before I go over the different phases with you, let's just take a brief look at what measurement and verification of an ESPC project is all about. Remember that annual M&V is one of the key mandatory requirements of an ESPC project and deserves the special recognition or attention.

Slide 17 – Joyce Ziesler

Annual M&V provides us with the basis of the savings guarantee that's also required, calculations relative to the baseline is established early on in the project development. A good M&V approach and, ultimately, M&V plan, gives the facility the means to verify the contractors annual M&V report.

Slide 18 – Joyce Ziesler

It's important to note that the M&V should be proportional to the ECM savings and performance risk. By that, I mean if an ECM performance risk related to the savings guarantee of the grade, the M&V option, which would provide aggressive monitoring, may be worth the cost.

Slide 19 – Joyce Ziesler

Taking a look at this slide provides us with just what the M&V options mean, in terms of ABC and D. Each option equates to the level, duration and degree of stipulation. The third bullet provides the range based on benchmarking data available through your FEMP project facilitator.

Slide 20 – Joyce Ziesler

The best descriptions of the M&V method then is advice on how to use them can be found in the FEMP M&V guidelines Version 3.0. The FEMP M&V guidelines gives us overview of M&V and specific guidance on how to use the methods for particular types of projects or ECMs found in federal projects. The Option A guidance discus the appropriate use of stipulations in M&V and also give detailed ECM-specific guidelines.

Slide 21 – Joyce Ziesler

So now that we've gone over some M&V pointers for you, let's take a look then at our phases. You have a basic understanding of what ESPC is about and so we're going to start with Phase 1 now, which is the acquisition or project planning. You'll be setting the stage for a successful project in this phase. You're going to contact your federal finance specialist in your geographical location, as to the map that Doug showed earlier, and discuss the best path forward.

Slide 22 – Joyce Ziesler

First of all, assemble your acquisition team and consider your facility needs with your federal finance specialist. They're going to help you identify and educate the decision makers and other staff necessarily for your project. Once you are aware and you wish to go forward with an energy project, your federal finance specialist will secure the services of a DOE FEMP project facilitator. The project facilitator's services are free to the site, up to and including a review of the preliminary assessment. After making the decision to go forward with a project, it's necessary for the agency to enter into an interagency agreement with the DOE Golden Field office or for farther facilitation support and cost.

Slide 23 – Joyce Ziesler

At the site level, the acquisition team must include at least the agency contracting officer and a site technical representative who will serve as the principle point of contact for technical issues. The acquisition team should represent all organizations that are affected by or should be consulted about the projects. This is just a list that we use as a checklist, but you may have more divisions or offices that you need to include in this initial acquisition team planning.

Slide 24 – Joyce Ziesler

So the key issues for the acquisition team to discuss are: Future use of the facility, needs of the facility occupants, condition of your equipment, your utility budget and related operation to maintenance, which buildings or in some cases, facilities, that can be bundled into one project, meaning more than one site that you, as an agency, can bundle under one project, and the desired energy conservation measures. The result of your team's planning at this stage will result in a requirements document, which will be sent to the 16 DOE IDIQ contract holders.

Slide 25 – Joyce Ziesler

Moving onto Phase 2. In this phase, you will be reviewing the preliminary assessments resulting from that notice of opportunity, given your site requirements, and the interested ESCOs and their qualifications. You'll select a winner from those and issue the winner on notice of intent to abort

Slide 26 – Joyce Ziesler

An ESPC project is a long-term partnership between the agency and the ESCO, requiring effective communication and close cooperation. Many agencies are reluctant to choose an ESCO partner before exploring their options and many doing a bit or market research that's available out there in terms of contractor qualifications. You have the right to participate in any kind of informal communications with several or all of the eligible prime contractors before deciding which one to do business with. There are several inexpensive, efficient ways for agencies to survey the field to determine which of the ESCOs offer the capabilities most in line with agency needs. For instance, information on the qualifications on all the Super-ESPC ESCOs is maintained by the DOE and is available on the FEMP website. Data on past performances is also available from the DOE contracting officer at the DOE Golden Field office. Some of the methods are the agency can invite ESCOs to make marketing calls. They just seek and invite the eligible ESCOs to respond with a limited amount of information, so as not to be overkill on that particular point, so the questions about the ESCO's technical strength management approach or other important factors that will help the agency determine which contractor is preferred. The agency can specify the venue, as well, such as a teleconference, written correspondence, meeting or other. Just be sure to be consistent with your research, give the opportunity to all interested parties and be consistent.

Slide 27 – Joyce Ziesler

The preliminary assessment is intended to give the agency enough information to make confident decisions on proceeding with the project, but it's not expected to complete understanding with the agency- and site-specific requirements. You may refer to clause H.3 of the IDIQ for guidance on some of this. So the key elements are a narrative summary of the proposed project, description of the ECM, estimate of proposed energy and cost savings, M&V approach in general terms, risk responsibility and performance metrics with use and attachment to the IDIQ, and financial schedules, which is also an attachment to the IDIQ. The preliminary assessment is intended to produce at a modest cost to the ESCO, but with enough information for the

evaluation team to make a decision on the selection of the best fit for your site. For format and required data to be submitted, reference clause H4 of the IDIQ, a generic copy of the IDIQ can be found on the FEMP webpage.

Slide 28 – Joyce Ziesler

Now let's consider a review of a preliminary assessment. Does it meet the need or can it be adjusted to meet the majority of your needs? Is it an appropriate project for a performance contract – a very important point, a performance contract. Is it a good deal for the government? Do you think your agency and the ESCO can have a good long-term relationship? Pay attention to the inclusion about the acquisition team determined where necessary ECMs and how each of the offers address those needs.

Slide 29 – Joyce Ziesler

After the team has evaluated all the offers and determined which, if any, of the proposed are feasible and valuable projects, select the best one for your project. That ESCO then in generally expected to continue on a single source path to task order award. The other competition is not required. The proposal won't be perfect, but it should include all the top priority ECMs expected in the final package. Any agency or FEMP comments of the preliminary assessment should be recorded, consolidated and provide to the ESCO in the next phase of development. These comments should be resolved in the investment-grade audit and final proposal without requiring additional iterations of the preliminary assessment. All other preliminary assessments or unsuccessful offers are returned to the issuing ESCOs with comments and an opportunity for a debriefing session.

Slide 30 – Joyce Ziesler

In rare cases, the facilities may determine that none of the offers are acceptable and scrap the project, because conditions could change at the facility, which would cause the acquisition team to consider starting over with a new requirement. This would be the case in the event, for instance, that the mission is expected to change or if additional buildings or sites need to be included, wanting to include more, in other words, for a single project, rather than multiple projects.

Slide 31 – Joyce Ziesler

The next phase, or Phase 3, has a very busy time in development of the pre-award activity, such as the generation of the task order RFP by the agency, the investment-grade audit by the ESCO, the receipt and review of the final proposal, final negotiations and, ultimately, the task order award.

Slide 32 – Joyce Ziesler

The task order RFP establishes sight-specific requirements that replaces or adds to the IDIQ language. The IDIQ language is very generic and is offered there as a basis for use of agencies

to be able to do a site-specific project. Your project facilitator will write a draft, given the information you have provided and then work with you to make any necessary changes.

Slide 33 – Joyce Ziesler

Only the contract provisions that need to be altered or supplemented to specify the requirements of the agency customer are addressed in the task order RFP. For example, contact information in the G section and invoicing procedures. Agencies also generally use the task order RFP to specify how operation and maintenance or equipment repair and replacement is to be handled. Special environmental and safety and health requirements, compatibility requirements for design, drawing and any other requirements or site-specific regulations or requirements by your site can be added in your task order RFP.

Slide 34 – Joyce Ziesler

So IGA is the ESCO's investment-grade audit of your facilities and energy systems. The IGA augments, refines and updates those in the preliminary assessment data and provides the information needed to establish the energy operation and maintenance baseline and update the visibility analysis of the ECMs under consideration. Such information is also used to verify or adjust the estimated annual cost savings and confirms the contractor's ability to structure a project with an acceptable term, with sufficient to guaranteed cost savings that cover the contractor payment. Remember that the contractor payment cannot exceed the guaranteed savings. The IGA is the basis for the revised technical and price proposal. The ESCO usually sends a team of engineers in this phase, led by a senior project developer to perform this IGA. The agency used should provide an escort or a range for access to the buildings to be surveyed.

Slide 35 – Joyce Ziesler

The ESCO integrates findings from the IGA with the requirements stated in the IDIQ and task order RFP to produce the final proposal. Detailed IGA findings are submitted at the part of the final proposal. The final proposal should be addressed appropriate M&V methodology, the risk responsibility and performance matrix, the energy operation and maintenance baseline, a management plan and pricing. The final proposal content is specific in the IDIQ contract and may be modified as allowed by the task order RFP. Negotiations to achieve agreement on the final task order are the basis of the final proposal and any other post-IGA submittals. The price proposal includes revised and negotiated task order schedule. So you have a technical portion and you have a pricing portion that's going to be your total final proposal.

Slide 36 – Joyce Ziesler

Price proposal to include supporting information pertaining to direct expenses for project implementation and performance period expenses are shown on task order schedules and are included in the price proposal. Here we have our task order schedule No. 1, which is the guaranteed annual cost savings and annual contractor payments, a summary for the entire period. Task Order Schedule No. 2 is the implementation price for ECMs or the direct call. No. 3 is the performance period cash flow, the wealth of cost and price data for your price analyst to review.

Schedule No. 4 is the first energy and cost savings, your energy and cost savings by ECM and technology category – in other words, your baseline and related savings. Task order Schedule No. 5 is required by congress and it's the annual cancellation sealing schedule.

Slide 37 – Joyce Ziesler

The agency contracting officer signs and awards the task order. The task order work consists of a face page and that is agency-specific – you don't need to use the DOE award form – task order price schedule; the revised task order RFP to reflect final agreement; the ESCO's final proposal, which is also revised per negotiation; the negotiated risk responsibility and performance matrix; and the ESCO's site-specific subcontracting plan. The agency notifies the DOE contracting officer of the award and provides a copy of the task award to that office.

Slide 38 – Joyce Ziesler

So now that you have your task order award in place, the next phase would be the construction or implementation period. We've divided this Phase 4 into two parts. Part One is the review and the design of the construction package and Part Two is the inspection, commissioning and acceptance of the project.

Slide 39 – Joyce Ziesler

Details of the ESCO's design plans and schedules must be approved before construction may begin. The process is for submittal and review of the ESCO's design and equipment selections and orders are defined in the ESCO's proposal. This allows the COR to verify that the installation of the ECMs comply with the contract and facility requirements. Remember this is a fixed price performance contract and the government's acceptance of the design and construction package does not relieve the ESCO from errors in the design or standard of service or requirements.

Slide 40 – *Joyce Ziesler*

The ESCO holds, primarily, responsibilities for inspecting its own work and the work of its subcontractors; however, the agency must conduct oversight of the ESCO's work and final inspections. In other words, verify that the following required actions have been taken: Facility and energy baselines have been accurately defined, the specific equipment has been installed and installed properly, the ECMs that have been installed have the potential to generate the guaranteed savings and you'll be using the commissioning test and balance and/or the M&V data, such as those contained in the post-installation report for your confirmation. Acceptance of completed project installation is up to the COR and the contracting officer, which will indicate the agency's acceptance of the installed project and that should go in as a letter to the ESCO. The ESCOs are generally highly motivated to resolve issues and achieve acceptance that all requirements of the contract have been met, so that the payments can begin. Do not go forward if everything has not been accomplished by your ESCO, such as those contained in a punch list. It's construction as usual in many cases that the ESCOs are gonna be quite eager to have the

payment stream start, so you should be diligent in having the ESCO fulfill all of its requirements and that the equipment is up and running as it should be.

Slide 41 – Joyce Ziesler

We do require commissioning under ESPC. Data on the performance of the new equipment is gathered during this commissioning. It's always done at the system level, and augment it with energy use data if old M&V methods are used. Although the bulk of commission is usually done prior to acceptance, other performance checks may be required by the ESCO after agency acceptance of ECM installation. For example, chiller performance should be assessed in the summer and sustained trap performance during the winter, regardless of when acceptance occurs. In other words, you would do a conditional acceptance and then a full acceptance once all equipment has been tested and it's performing to its standard.

Slide 42 – Joyce Ziesler

Phase 5, the performance period and administration of the contract is the beginning of the long-term partnership between the facility and the ESCO. This phase can be the most problematic phase for the facility relative to turnover of personnel and the continuation of good oversight by the site and the ESCO.

Slide 43 – Joyce Ziesler

One of the first considerations in the phase would be invoicing and payments. Written notification from the agency to the ESCO confirming that the installation complies with the terms of the contract and has been accepted marks the point where the ESCO may submit invoices to the agency. Invoicing and payments can be done monthly, annually or other negotiated intervals. The agency is responsible for verifying that the monthly invoices contain any required M&V documentation before you issue payment. Creative payment methodology, such as annual and advance payments for installed equipment, not the ESCO services, has resulted in significant savings in terms of reduced finance costs. Many facilities have, in recent years, used this payment method as their preferred choice. The agency is responsible for verifying the invoices and making sure any required support documentation of services performed are submitted.

Slide 44 – Joyce Ziesler

The ESCO provides the services specified in the task order during the performance period. These services may include operation and maintenance, periodic retraining of the agency O&M staff, M&V, and other services that you may have negotiated into your project. The agency verifies that the ESCO is delivering all of these negotiated services.

Slide 45 – Joyce Ziesler

To verify and document that the guaranteed savings are being delivered, the ESCO carries out the M&V plan. The 13 months after installation is the very first one. The M&V plan establishes

a schedule for site inspections and for specific measurement and monitoring, as well as the documentation required for periodic performance verification. Remember the M&V options A, B, C and D that will be included in your plan. This documentation referred to in the FEMP M&V guidelines as the regular interval report, generally verifies continued operation and performance of the installed ECMs, qualifies associated energy savings and demonstrates proper maintenance. The documentation is used to verify that the ESCO has delivered the guaranteed level of cost savings over the year.

Slide 46 – Joyce Ziesler

If the actual annual savings, as determined by the M&V report, are less than the annual guaranteed savings amount, the ESCO must correct or resolve the situation or negotiate a change. Reconciliation of the savings generally occurs annually. The guidance for reconciliation and the process for resolving disputes are specified in the IDIQ and you may have modified that in the task order RFP.

Slide 47 – Joyce Ziesler

At the end of the contract term, the agency notifies the ESCO by letter that the performance period is over and that the payment is going to cease. Title transfer may be held by the agency or the ESCO during the contract term, depending on which option is most advantageous to the economics of the project. If the transfer occurs at the end of the contract term, it becomes a part of the closeout process. Most agencies currently transfer title at the acceptance of the installation and the initial M&V report, after the confirmation of the guaranteed savings.

Slide 48 – [No audio]

Slide 49 – Joyce Ziesler

The FEMP website provides links to resources, such as tools and guidance. This slide shows just a few for your consideration.

Slide 50 – *Joyce Ziesler*

Our federal finance specialists are available, again, to the federal agencies for consultation. Note the geographical areas for each of our federal finance specialists.

Slide 51 – *Joyce Ziesler*

So this concludes the brief overview of ESPC, so we can go to a question.

Slide 52 – Doug Culbreth and Chandra Shah

Joyce, thank you so much. That's very informative and we may have time for other questions for Joyce at the very end or you can send questions directly and those will be answered to you. Now we'd like to go forward with Chandra Shah, from NREL, who's going to be talking about

Power Purchase Agreements and enhanced use leases the first half of this, before we take our 15-minute break. Remember, this is a three-hour webinar that goes until 2:00. Chandra.

Good morning, everyone.

Slide 53 – Chandra Shah

I'm going to talk about Power Purchase Agreements. I'll go over what we mean by a "Power Purchase Agreement," discuss the project process, some hybrid options that are available, go through some case study examples, discuss the enhanced use lease, briefly, and then talk about what kind of support, resources and summarize some of the key points from the presentation.

Slide 54 – Chandra Shah

So what we're talking about here is having a renewable developer, a private company that purchases and installs and then owns and operates and maintains renewable equipment that is cited at the federal site. And then the site will purchase the electricity through what we're calling a "Power Purchase Agreement." Typically, that renewable developer will go out and get financing to get the money to pay for the renewable equipment. One thing to keep in mind is that this customer side of Power Purchase Agreement should not be confused with the wholesale Power Purchase Agreement, which is a term of ours that has been used in the utility industry for years for purchases that utilities sometimes make from independent power producers. What we're talking about here is something that is distributed generation that's a customer's site, behind the meter. There are some key benefits to this option. One of those benefits is that the renewable developer or their partner is eligible for various tax incentives that are available. Those tax incentives are, of course, not available to the federal sector. Federal incentives include the investment tax credit and accelerated depreciation. There may also be state and local tax incentives that are available, depending on where you're located. Another key benefit, which PPA shares with the UESC, and ESPC, is that no upfront capital is required. This is always a key benefit. Another benefit is that the renewable developer will provide the operations and maintenance throughout the term of the contract, so you don't have to worry about having that expertise at your site, and the renewable developer has the motivation to keep the system operating well, because they're payment depends on the kilowatt hours that are generated from the system. Typically, the PPA price is either fixed or fixed with an escalation rate, so you know what your electricity price is going to be for the contract term for a portion of your site load and this helps to protect the site from volatile energy prices and we've all seen that prices can skyrocket and having a known price for a long term can be a significant benefit. So there is minimal risk to the government with this scenario. You only pay for what is actually generated. Another benefit is that onsite projects are encouraged by Energy Act 2005, the renewable goal and the EL13423. And there is double bonus for onsite projects, so this is a good alternative to purchasing RECs, which is one main way that federal agencies have met the renewable goal. The onsite projects can help with energy security goals, keeping in mind that, typically, you're going to have to make some adjustments to the design, so that the system will stay up if the grid goes down. On the downside, there are significant transaction costs and administrative requirements for the site to get projects implemented, but keep in mind that most of these costs would be involved, no matter how an onsite project was implement and FEMP is available to

help you through the process. There is fairly limited federal sector experience, certainly less than with the UESC or ESPC, but that experience is growing, especially over the last year, and with FEMP's assistance, we can help you work through the process.

Slide 55 – Chandra Shah

This is a diagram that gives you an overview of the various entities and the agreements that are typically involved in a PPA. The first agreement is the PPA and that's between the federal site or a contracting agent, such as defense energy support center and the renewable developer. There is a land use agreement that gives the renewable developer the right to use the land and that will be between the federal site and the renewable developer. And then, there will typically be interconnection agreement, which could be between the utility and the renewable developer. It could also be between the utility and the federal site or it could be a tri-party agreement, depending upon utility regulations and the desires of the various parties. There are possible additional contracts, such as a contract to purchase the RECs. Those are shown in dotted lines and then if the renewal project is significantly larger than the site load, then there will need to be some purchaser of the excess electricity, and that's also shown with the dotted arrows.

Slide 56 – Chandra Shah

Now we'll get into project process guidelines. These are just some ideas of how to go forward with the project process. Keep in mind that some of these activities may not occur in the order that I show them and you need to figure out what works best for your site with FEMP's assistance. And I have assumed here that you've selected your renewal project and you've evaluated the various financing options and that you selected a PPA as the way to go.

Slide 57 – Chandra Shah

The first key activity is to make sure that the PPA option is legal in your state. There are states and utility service territories where they are not legal and you don't want to move forward with a project and then find out, after you spent a lot of time, that it is not allowed in your state or your service territory. And there is some information available on the Dsire website. The link is shown here. That's a link to a variety of maps, including a map that has some information on PPA legality. They are doing more research and will be updating the map this summer with additional information. So if your state isn't showing, you can contact me and I can see if there's any research that's been done and see if we can move that state up in the queue for the research. It is also possible that the renewable developer will be subject to the public utility commission for some type of oversight or approval, so that's another thing to keep in mind when you're looking at a time frame for project implementation. And keep in mind that 40USP591 does state that federal agencies must abide by the state laws, so if there are some regulations that prohibit PPAs, it's pretty likely that that's not an option for your site, unless you're a federal enclave or have some other unique situation at your site. Another key point to look into is who owns the land and the buildings. If it is not your agency, then you need to work with the agency or entity that does own the land or buildings. There might be a management company that's involved. The Department of Energy has management and operation companies, M&O contractors that operate many of their laboratories, such as what we have here at NREL. So you need to engage

the various entities that may be involved. Make sure you know who pays the utility bill and determine who will sign the contract and get the buy-in for all those entities that are involved in the project. Another key consideration is future plans for the site. Is there a chance that the facility where you're proposing a project might be torn down or the site might be shut down in the future? If that's the case, then you want to consider whether it's a good project to more forward with and if you decide yes, then you could include an option to move the renewable system if such changes do occur, keeping in mind that that could increase the PPA price.

Slide 58 – Chandra Shah

So now you want to make sure you have all of your utility bills and energy use information gathered. You understand what the tariff for your site, whether there's a demand charge, whether there's peak and non-peak or time of use rates, and if you are in a competitive electric market, you may have a competitive supply contract to consider as well. Look at what the current contract is and when it expires and what the plans are for renewal and then look at your – compare the energy usage information to the estimated renewable generation and make sure that if the renewable generation is gonna be higher than the energy usage, then you want to look into net metering or the feed-in tariff for the state, to make sure that your project is eligible and whether it makes sense to have a project that is larger than the site energy use. In some cases, you may decide to have a much bigger project and then you need to make sure there's a buyer there for that electricity, whether it's the utility or somebody else. Then you also want to look into the renewable energy certificate markets, the REC markets can make projects much more viable. One thing to keep in mind is that if the RECs are sold, then to get credit towards the federal renewable goal, you will need to buy replacement RECs, and I'll say that several times, just to make sure that – that's a key point that people need to understand. It does allow you to get the benefit of valuable RECs and still get credit towards the goal by buying cheaper RECs. There is information on the various incentives on the Dsire website. The link shown here is the main page for the database of state incentives for renewable energy and energy efficiency, so there's a lot of great information on that site.

Slide 59 – Chandra Shah

So this is one of the maps that's available on the Dsire website. This map shows where there are renewable portfolios, standard requirements for a state and where there are specific solar requirements. These are the states where solar projects will be most attractive, because, typically, they have incentives or valuable solar rec markets. For example, New Jersey is one of the most – has the most lucrative solar rec markets in the country. California does not have a solar requirement, but they do have fairly attractive solar incentives, although those solar incentives have been going down over time.

Slide 60 – Chandra Shah

Net metering is another important policy where there is great information on the Dsire website. Here you can see that there is a patchwork of utility regulations. Almost every state had a net metering regulation and they do vary significantly. So to get information about your state's net metering regulations, you can go to the front page of the Dsire website, click on the state that

you're in and then scroll down to net metering or some other regulation and click on that link and it will have detailed information. Do keep in mind that Dsire, while they keep their information up to date fairly regularly, you do need to check the date and check and see if there's been changes since the date that Dsire was last updated.

Slide 61 – Chandra Shah

Another key activity is to make sure you have upper management buy in as you move forward with the project and ensure that the project is compatible with the future site plans and the future mission of the site and upper management will have that information. You don't want to get too far down the path without insuring that you have the approval of the high-level decision makers at your site. And there might also be some requirements for approval and buy in at the regional or even headquarters level. You want to make sure you have your project team in place. A champion is key to keep the project moving forward and then there are other entities that might be part of a team that meets regularly or that may just be needed for consulting on various issues as they come up. You also want to see if there are any non-federal stakeholders that may have an interest in the project, whether it's on the support side or if there is potential for barriers that might come up. It's best to anticipate those rather than come up against them as you move forward with the project. Again, you want to make sure you understand the approval process for moving forward with the project and then understand the approval process for when the project RFP has been issued and you're getting ready to sign a contract, who needs to make that final approval and who needs to approve the land use agreement. So you establish rules and responsibilities. You can develop a timeline and then it does help to have periodic meetings to keep the project on track. So these are some ideas of how to keep the project going and who to get involved.

Slide 62 – Chandra Shah

One of the key issues with PPAs is the contract length. Typically, a long-term contract is best for the renewable developer. Typically, 10 years is the minimum, but ideally, 20 years. Unfortunately, the FAR Part 41, the utilities services authority is only 10 years, so this has been a barrier for projects, because the renewable developer may need more than 10 years to recoup their costs and make a reasonable profit. With a 10-year contract, the PPA price may be much higher than it would be if there was a 20-year contract. This is a barrier that we continue to research to look for options. The Department of Defense does have a unique authority to 10USC2922A that gives 30-year authority. It does require Secretary of Defense approval. Your service may have delegated it down, so that's something to look into. So the Department of Defense does have a good option. There have been numerous congressional proposals to increase the renewable contracting authority. Unfortunately, none of them have passed yet. We're still waiting anxiously for something to get through congress.

Slide 63 – *Chandra Shah*

One option for dealing with the contract clients is using Western Area Power Administration or Western. They cover most of the western United States. You can see the service territory here. They have a long-term power marketing authority that allows them to sign contracts for 20 years

or possibly even longer. One thing to keep in mind is that if Western does agree to work with you on a project, they will not actually select the renewable developer. That's up to the site. They will just negotiate the PPA between the renewable developer and you. There are several examples that are out there, including NREL, and then Fort Carson. So the benefits from lessons learned from those projects will be passed on to new agencies that want to use Western. There is a fee for Western Services. There is a fee for negotiating the PPA and then there's an administrative fee, a very nominal annual administrative fee, and that fee could be – a net present value could be determined and paid with the PPA fee. And then keep in mind that with the PPA fee, it does depend upon the amount of effort that's required. The NREL and Fort Carson PPAs did require a significant different level of effort, so the price for those PPAs were different, but you keep in mind that both of those projects did help with learning a lot about the PPA process, so you will benefit from that education that occurred. Western does have a renewable resources for federal agency program that has been in place for over five years that was developed in conjunction with FEMP. FEMP does provide funding to Western on an annual basis. That funding can be used to help agencies understand the process and make sure that they want to go forward with using Western. So that type of effort is covered with the FEMP funding and once you're sure that you want to move forward with the project, that's when the clock starts ticking in terms of the cost that you will need to reimburse Western. Randy Manion is the program manager and there is some information on the website that you can check into.

Slide 64 – Chandra Shah

Coordinating with the local utility is very important. I cannot emphasize that enough. It's very important to talk to the utility early on in the project development to make sure that you understand all the requirements. Interconnection is one of the key issues that may come up. You want to understand what the process is, the costs, the potential study requirements and timeframes. I've mentioned the potential for tariffs or understanding the tariffs. It's possible with a large renewable project that with significant changes in the demand for electricity from your site, it is possible that you'll be under a different tariff, so you want to understand if that might be a possibility. There may be standby charges that will impact the viability of the project. So these are all things that you want to discuss with the utility. You also want to look at your site and if it is all on one meter with all the lines on the site that are owned by the site, then it's usually pretty simple. But if the lines have been privatized or are owned by the utility and there are individual meters, then you need to consider what the tie-in options are. If you need to use lines that are not owned by your site, then you need to look into what approval is required and the potential cost for using someone else's lines. It may be possible that the renewable developer will have to build separate lines. This came up with a project that we're working on. And then looking to exactly how they measure net metering projects for net metering rule considerations. For example, it is possible that they base it on AC rating or DC, and it could be based on the inverter capacity. We found that out for a project in California, where PG&E actually looks at the inverter capacity rather than the solar project capacity. So it's important to understand what the utility is going to look at when they determine whether your project fits within net metering or any other applicable regulations.

Slide 65 – Chandra Shah

Another key consideration to address up front is the National Environmental Policy Act or NEPA and other environmental requirements that may be applicable for your site. You really want to investigate those requirements early on and get those studies going as soon as possible. NEPA, typically, will require an environmental assessment, at least for the smaller projects, and if a finding of no significant impact is determined, then that will be sufficient. For larger projects, it is possible that an environmental impact statement will be required, and EIS, and that's a much more time consuming endeavor for rooftop systems, potentially other systems there may be categorical exclusion of which is usually a simple process to get that documentation. Storm water management and EPA rules for construction also may be applicable. Then if you're considering a concentrated solar power or a biomass project, you need to look into water availability, since both of those technologies require water for cooling and you can consider dryer hybrid cooling options.

Slide 66 – Chandra Shah

Another important consideration to explore early on is the various land use agreement options. These agreements are to provide the renewable developer with the right to access and use your land. Some of the main options available are a lease or an easement or a license, right-of-way. There may be other agreements as well. And this is a separate contract, so you want to look into what the options are for your agency. They do vary significantly. The authorities and contract links options do vary by agency and approval requirements might vary depending on the type of document or which agency you're in. It is possible that approval will go all the way up your chain and that can take some time, so it's important to look into that right up front. A long-term land use agreement can help with a project's viability if you do not find a way to have a longer-term PPA contract. And GSA has a very simple, revocable license form that's available at the website that's shown. There are some requirements that may be associated with a land use agreement. There may be a land appraisal and/or a legal survey that will be required. Another thing to consider is doing an environmental baseline study and this is important if you have some removal and restoration requirements at the end of the contract. This helps to document what the original conditions were before the system was installed.

Slide 67 – Chandra Shah

REC ownership is another really important consideration. The RECs do represent the environmental attributes of electricity that's produced from renewable resources. They can be sold separately from the electricity that is generated from the renewable project. You want to make sure that you're clear on who will own those RECs, whether you want to purchase them with the electricity from the renewable developer or whether you want the renewable developer to sell those RECs and pass on some of those savings in the form of a lower PPA price. As I've mentioned, lower RECS especially may be very valuable in states where there is a solar requirement and if those RECs are sold, then you need to use what's referred to as the "REC swap option" to get credit towards the EPACT renewable goal to get that double bonus that's available for onsite projects. So basically, what we're talking about here is having the renewable developer sell valuable RECs. It might be 20 or 40 cents a kilowatt hour, maybe even higher, and then purchase much cheaper national RECs that, right now, the market price is around .1 cent per kilowatt hour. You can see the benefit for this REC swap option in terms of helping

with project viability. There is information about this REC swap option in the renewable guidance and the website, as show here. Another consideration is the new executive order 13514, which deals with greenhouse gas reductions. And the guidance for that executive order is still in draft form, but keep in mind that probably, onsite projects that sell the RECs will not get the greenhouse gas reduction credit. So that's something else to consider when you're determining what to do with the RECs. But again, the guidance is not final, so stay tuned for the final guidance, because it is possible that something will change, although unlikely.

Slide 68 – Chandra Shah

Some considerations for PV systems, and I'm talking specifically about PV, because all of the PPAs to date have been solar, so most of these projects are solar, although keep in mind that if you want to do a wind or IMS or other renewable project, there's nothing that would prevent using the PPA mechanism. Ground-mounted PV systems, keep in mind that the land requirements do depend significantly on the type of PV system that is used, whether it's crystalline, which is higher efficiency or system with lower efficiency and then the type of system that is used, whether it's a fixed system or is single axis or dual axis tracking. Typically, we just recommend specifying what land you have available and then letting the renewable developer determine what PV technology and what system type makes the most sense from their perspective in terms of reducing the PPA price. You want to look into your soil conditions to determine whether the potential digging that's required will be a problem. You want to look into whether there are upgrades that are required, such as a road or a fence and other potential requirements, and you want to determine who will pay if you want the renewable developer to pay for these upgrades, and you want to make sure that's clear in the RFP. You want to look into shading and make sure that the systems will not be shaded. Usually, with ground-mounted systems, it isn't too much of an issue. You also want to determine whether your site is in a high wind area. Perhaps there are hurricane issues, in which case, there will be additional requirements in terms of making sure that the system is safe, in terms of high-wind conditions. Roof systems have different considerations. You want to look at the type of the rood, the age of the roof, when it's going to be replaced. Another key consideration is the maximum load that the roof can safely support, keeping in mind additional potential weight from snow or rain. Take that into account. You want to look into the warranty for the roof. If the warranty could be voided by the solar system, you want to look at potential solutions, such as having the renewable developer take on that warranty for the portion of the roof that is covered by the PV. And then you want to look into whether there are concerns with roof leaks and if so, you may want to prohibit penetrations of the roof. There are PV technologies that do not require any penetrations. You also want to look at the orientation of the roof. South-facing is typically beneficial, whether it's tilted or not and shading for roofs is a little bit more important, because there might be even equipment on the roof that could potentially shade the PV system at some time during the day or during the year and you want to avoid that shading as much as possible. Fire protection is also a key consideration. Typically, you want to leave some room on the roof for firefighters, if there is a fire, so they can get on the roof and have space between the PV system to do their work. GSA has guidelines and other states, such as California, also have guidelines. If you want that information, I can pass it on to you. And then, again, with rooftop systems, wind is it also a consideration?

Slide 69 – Chandra Shah

For other renewable-type projects, for example, wind, there could be other considerations. Height could be a concern if near an airport or radar interference for IMS. You want to look into the state and local emission requirements. In terms of electrical considerations, as I mentioned, you also want to know who owns the site electric lines. You want to gather your electrical drawings and other pertinent information about the site, consult with your electrical engineer that is familiar with the infrastructure and the electrical configuration of the site and can provide information about whether upgrades are required, what are the best tie-in options. Look at where inverters could be located, whether it's in the building or outside the building or on the roof. Another technical consideration is whether your system is tied to a utility network distribution system. There are some key considerations here and NREL has a report that has ideas for solutions if you are on a network distribution system. All this information, the drawings and other electrical information, it's important to include that in the RFP package because the developers will ask for that information.

Slide 70 – Chandra Shah

Okay. So, now we're in Phase Two of the project process, and here you want to select your contracting agent. And you actually may want to consider this step earlier on in the process because it's likely that whoever is acting as your contracting agent will want to be involved with some of the details as the project moves forward. So, if you have contracting staff available at your site, or perhaps you have regional or headquarter staff that are available, then that's an option. The Defense Energy Support Center – or DESC – has a renewable team that was established a little over a year ago. The leads are Andrea Kincaid and John Nelson, and then can help with your PPA. They can issue the RFP on behalf of the site. As I've mentioned, sites in the Western Utility Service territory can use Western to negotiate and sign the PPA contract. So, once you've selected your contracting agent, then you could consider a request for information if you want to gather more ideas for the project, and then get into a Request for Proposal or other procurement document as makes sense for your project.

Slide 71 – Chandra Shah

Some of the RFP provisions include specifications for the renewable project. If you want to make sure there are not hidden costs – that it's clear that the renewable developer is responsible for inverter replacement, all repair and all other replacement costs – end of contract is something we're talking about within the federal sector in terms of – what are the best options are. There could be system removal and the land restored to original condition, or the system can be abandoned in place. When it comes to system removal, consider that there are costs associated with this. So, it may be beneficial to have a limited system removal with the land not necessarily restored to the original condition. You way want to leave – for example, if there's roads or a conduit or fences that have been put in place, you probably don't want them to have to remove that equipment. If it's a carport system, you may want the infrastructure for the carport left in place so that you can either put new panels on or put something else so you still have public parking. So, that's something to consider – that the removal costs, if they're worked into the contract price, could increase the PPA price. So, it's best to be very specific and consider what

really needs to be done at the end of the contract. There could also be a system purchase. It must be at Fair Market Value. This is for the tax IRS rules, and it may be possible to extend to contract or issue a new solicitation. You want to look at what the submittal requirements are going to be – proposals. They're usually linked to the evaluation criteria that you will use, and the financial capability and condition of the company is very important, given the economic conditions, since financing can be hard to come by. And you may want to look at the metering requirements so that you can have real-time access to the generation information. If you have an on-site, energy-management system, you want to make sure that those meters are compatible with your energy-management system. You also want to ensure compatibility with the utility requirements, especially if they're buying the rights. So, these are some things to consider.

Slide 72 – Chandra Shah

This is a printout for Camp Pendleton. It shows the system that they have for their PV system. It wasn't implemented using a PPA, but I thought this was a nice diagram that shows some of the information that you can track for a system. And while the renewable developer is responsible for keeping things operating, it is helpful to have the site keeping track as well because it is possible that the system will go down. And this did happen at one site, where no one was really aware of it for at least a couple weeks. And I don't know what the renewable developer was doing because they had lost revenues. But if the site is aware and paying attention, then you can notify the renewable developer that there's something amiss.

Slide 73 – Chandra Shah

So, you want to look into the various options for evaluating proposals. Low Price Technically Acceptable is one option. Best Value is another option. You could go with Low Price but we wouldn't recommend it for this kind of project. It really is best to have other criteria beyond just the price. Determine who is on the evaluation team, and then what criteria you want to use for evaluating the proposals. As I mentioned, the PPA electricity price is typically a fixed price or with an installation factor. It is possible to have a de-escalation factor. What this allows is for the renewable developer to get more of the payment upfront to help buy down their costs. And then, it gives the site a lower price as you move forward in the contract. You want to make sure that you evaluate price and escalation factors very carefully. If there are varying escalation factors, then you need to figure out how you're going to discount future revenues or costs based on those escalation factors. So, it does make it a little bit more complicated than just a simple fixed-price project. As I've mentioned, look into the potential utility tear-off changes, potential stand-by charges, the impacts of time of use or peak and non-peak rates or seasonal rates and demand-charge savings, keeping in mind that those demand-charge savings may be minimal – certainly less than most people anticipate. Ten percent is a good rule of thumb for demandcharge savings. And then, you compare the price proposals to NIST EIA rates that are available in the handbook with the link shown here. They're updated every year, and you may also want to look at another rate forecast.

Slide 74 – Chandra Shah

So, usually the RFP and distributed widely typically will be posted on FedBizOpps. Department of Energy's Green Power network has an RFP website. I can help you get it posted there. You may want to go through the applicable Renewable Energy Industries Association, whether it's the Solar Energy Industries Association or the Wind Association. You'll definitely want to set up a site visit with a tour of the potential renewable sites and a pre-proposal meeting. Look into the access requirements for the folks that will be coming on the site. You will typically have quite a few people from a variety of companies, so you want to make sure that you understand the security requirements for getting everybody in the site. Get a safety plan in place, especially if people will be going onto roofs, and you also want to make sure there's some method put in place to make sure that everybody has access to the same information. For example, in prior site tours that I've been on, what we've done is we've had people write down their questions on index cards and give them to the procurement staff so that they can then summarize all the questions, answer them all and post that information on a website so that everybody has all the same information. And then, you evaluate the bids and award the contract.

Slide 75 – Chandra Shah

Then, we get into project construction. You want to work with a renewable developer to make sure that all the crucial deadlines are met, help with the applications for rebates, et cetera. And it really helps to have a single point of contact for the renewable developer to work with. In terms of publicity, one cautionary note is to be careful what you say if you're selling the RECs because, if you are selling the RECs and somebody else is claiming that project – so, you just want to make it clear that if you are selling the RECs, that you're selling them. You're just hosting the system, and that the way you're getting credit toward the federal renewable goal is by purchasing replacement RECs. You can have a press conference and/or a press release. You can do a website story, whether it's on the FEMP website or some other website. And you can also put in a focus story. And then, in terms of operation, you want to track actual production to make sure the system is operating and so that you can report the production on an annual basis in your Annual Energy Report and purchase the replacement RECs. And there's a dinging that's going on. I don't know if somebody doesn't have their phone muted.

Slide 76 – Chandra Shah

Some other things to consider is, if you're negotiating a new lease, you may want to make sure that that lease allows for solar or other renewables. If you're building a new building or replacing a roof, you can check out a report that NREL issued – the Solar-Ready Builder's Planning Guide. It's a very user-friendly guide. It has checklists and other things to consider for a solar project so you can get the right infrastructure in place – the electrical infrastructure – in case you decide to put in solar. And we're also working on some toolkit documents, a template PPA, a template utility PPA. We have a new PPA fax sheet that will be posted soon, and we're also working on some detailed screening questions that I can send out to anybody who's interested.

Slide 77 – [No audio]

Slide 78 – Chandra Shah

So, now we'll talk about some hybrid options. One is to do a PPA within an ESPC. This is what's referred to as an Energy Services Agreement. The benefit of this agreement is that ESPC has a long-term contract authority. Typically, with an ESPC, the federal government retains ownership, but in the case of an ESA, you want the ESCO or their partner to retain ownership so they can take advantage of the tax benefits. And keep in mind that this agreement will be slightly different from a PPA since there must be a fixed payment to match the guaranteed production. And so, the payment will be linked completely to the kilowatt hours generated. There are several projects in progress. There are no signed contracts yet. Doug Dale is our senior ESPC here at NREL. He's working on some agreements that can help you if you are interested in moving forward with a project. Another possibility is working with a utility for a PPA, and here the utility would own the system and take advantage of the tax benefits. There's a FAR Part 41 authority that might be used. We're working on, as I mentioned, a template agreement and we're pursuing a pilot project. We have a couple of ideas, but we haven't actually moved forward yet with this pilot project. So, if your site is interested, you can certainly let me know and we can help you with doing the pilot project.

Slide 79 – [No audio]

Slide 80 – Chandra Shah

So, quickly go through some case studies. Nellis is one of the first projects, and it's the largest at 14 megawatts. The PPA price is very attractive. They're saving a lot of money. We probably won't see a price that low again, unfortunately. One of the ways for that price to be so low is that the RECs are sold to the utility at a fairly high price, and that really helped to get the PPA price down for the Nellis Air Force Base. It was installed and became operational in December of 2007. You can see in the picture – President Obama came to the site to check out the project.

Slide 81 – Chandra Shah

NREL has several PV projects that were implemented using a PPA. The first is a 720 kilowatt system. They utilized Western to get a 20-year PPA contract. Again, the RECs were sold to the utility. This became operational in December 2008, a little over a year ago. We have additional PV projects that were implemented with a follow-on PPA contract, a rooftop system and a ground-mounted system that are operational. And then, there's a rooftop system that will be constructed soon on a building that just opened at NREL. And the estimated size is a little under 500 kilowatts for that new PV system.

Slide 82 – Chandra Shah

For Carson, he also has a project here in Colorado of two megawatts. They also used Western. RECs were sold to Excel. They did install the system on an old landfill and they used Thin Film technology. It came online around the same time as Nellis, and you can see here Vince Guthrie, the energy manager, and Scott Clark from the environmental side. They got an award from the state and they're shaking hands with Colorado governor Bill Ritter.

Slide 83 – Chandra Shah

Another project – here we have a rooftop project with GSA. This is a ten-year contract, so it's a shorter contract. The price was matched to the utility rate with a price floor, so it's a different PPA price configuration. They had a license for the use of the roof, and the renewable developer did retain the RECs, and this came online a little over two years ago.

Slide 84 – Chandra Shah

The Coast Guard Petaluma is one of the most recent projects. It's slightly less than a megawatt. The price is much higher than Nellis, but they did get to retain the RECs. So, that's one of the reasons for the higher price. And then, California electric rates are pretty high, so that's still a pretty decent price, and this just came online recently.

Slide 85 – Chandra Shah

This just compares the various projects and how they were installed – the various configurations. This information will be posted on the FEMP website, so if you want to go back, you can review the slides in more detail.

Slide 86 – Chandra Shah

There are some in-progress projects. EPA has a project in New Jersey. There's the DLA project in California. The Navy recently awarded a multiple-award contract and they're working on task orders at three different sites.

Slide 87 – [No audio]

Slide 88 – Chandra Shah

Now, we'll talk briefly about enhanced use lease. Next slide. This is one option for renewable projects, keeping in mind that only certain agencies have the EUL authority. This is a real estate agreement, so the lease is competed rather than the energy purchase. So, it's slightly different than a PPA. It's typically a good option for very large projects, where the size of the project is much greater than the site load. And so, really, it's just providing non-access land for use for a project where most of the electricity will be sold to some other entity. And the payment can be cash or, more likely, an in-kind consideration. There have been some great presentations at the last two GovEnergy conferences, and you can access those presentations on the website shown here.

Slide 89 – Chandra Shah

Fort Irwin is one EUL example. The lease has been awarded about a year ago, and they're working on a development of a fairly large project. Hopefully, we'll hear more at GovEnergy about where this project is going.

Slide 90 – Chandra Shah

NASA, Kennedy Space Center in Florida, has a couple of solar projects that they worked on with Florida Power & Light – a ten-megawatt system that's owned by the utility, and then the in-kind consideration of about a megawatt. And both of those systems are operational, and here they had to deal with hurricane standards and high-wind standards. And so, that of course dictated some of the configuration requirements for the solar project.

Slide 91 – [No audio]

Slide 92 - Chandra Shah

And now, we'll get into some of the support and key points. First of all, you want to ensure that the PPA option is allowed. You want to talk to the utility, understand the connection agreement requirements and other project considerations. I cannot emphasize enough – talk to your utility early and often. Look into the incentives and policies, and a desired website is a great resource for that. Look at what your contract-length options are. Review NEPA requirements and other environmental requirements, and start that process early. Also, look into the land-use agreement options and approval process, and start that early on. And then, consider what the tie-in options are, taking into account the utility metering and ownership of the lines at your site.

Slide 93 – Chandra Shah

In terms of support, NREL and other support staff provide screenings and assessments. There are screenings that are in place for every new ESPC project. These are also available for projects that are going to be implemented through a PPA. In terms of other project assistance, we can help you pretty much throughout the project, whether it's market research assistance; assistance with other requirements such as the land use agreement; help with the RFP; and then evaluation of the proposals. Basically, assistance throughout the project with whatever you need.

Slide 94 – Chandra Shah

And here, we have a variety of resources. There's myself; Gerald Robinson from Lawrence Berkeley National Lab; Mike Warwick from PNNL. There's an old focus article – it's a little out of date, but we do plan to do another focus article probably some time in the next six months with some updated information. There is a PPA website that includes sample documents, so that should be helpful. EPA also has a website, keeping in mind that this is for all sectors. It's not geared toward the federal sector, and EPA had a very helpful Webinar a year ago and there's information on the Webinar shown on this website.

Slide 95 – *Doug Culbreth and Julia Kelley*

Julia Kelley from Oakridge National Laboratory is going to now talk about utility energy savings contracts. Julia?

Hello, this is Julia Kelley and it's a pleasure to be here this afternoon for the Alternative Financing Options Webinar. This is the third and final portion of the Webinar, where we'll talk about Utility Energy Service Contracts.

Slide 96 – Julia Kelley

These bullets cover the ground that I'm going to cover during this latter portion of your Webinar. I'll give you a description of UESCs and their legal authority. We'll take a quick look at the UESC process. We'll go over UESC process, key issues and decisions that you make, and also we'll touch on some available tools and resources to help you should you decide to move forward with your UESC project. The reason we're taking a look at UESCs this way, rather than spending the whole time on the process, is that the process has some similarities to the Energy Saving Performance Contracts that you heard about earlier in the program. So, I'm trying to focus this portion on what would be new and different with UESCs.

Slide 97 – Julia Kellev

And we'll move forward into a description of Utility Energy Service Contracts and their legal authority.

Slide 98 – Julia Kelley

First of all, let's just take a look at a definition of Utility Energy Service Contracts. These are specific contracts that allow utility companies to partner with federal agency customers and provide them with comprehensive energy and water efficiency improvements and demand reduction services. Under these UESC contracts, utilities assess the opportunities at the federal sites, design and implement the energy conservation measure packages. They may front the capital cost or provide financing for the federal side if that's requested. And if that happens, then the utilities are paid back out of the energy savings from the utility bill.

Slide 99 – Julia Kellev

Let's assume that you are going to finance your Utility Energy Service Contract. I wanted to give you a diagram to show a little bit more about how that might work, and if you'll go ahead and push the button a little bit more to bring up the rest of the bars on this chart. That's great. So, UESCs reallocate the government's utility budget and so, before the UESC is in place, you at your federal agency site are paying the full energy bill that's shown in the bar at the left side of the screen. During a UESC, you've implemented the energy conservation measures and you've financed the project through a financier that your utility company brought on board to the project, and you have therefore new energy conservation measures that are helping you save energy. So, you're able to take the difference and pay the utility company back over time for the installation that they did at your site. Then, after you have finished paying the utility company back over time, the government still is retaining savings from their implementation of these new measures.

Slide 100 – Julia Kelley

There are some special considerations with UESCs that I wanted to alert you to. One is simply that UESCs may not be available to all federal agencies, and that is because not all utility companies offer Utility Energy Service Contracts. They can choose to offer this service or choose not to, and some of them do offer this type of service and we think it's worth exploring. So, another consideration is that utility may be new to this type of contracting. We are seeing a few more utilities deciding to offer UESCs, but they may not have very much experience doing Energy Saving Performance Contracts. When that happens, it is perfectly fine. You can still enter into a partnership with them. A lot of times, if they're relatively new to this type of service, they might subcontract out. A lot of that work, too – and ESCO, an energy service company that, like you heard about earlier in this program – or another type of engineering consulting firm. That type of arrangement has been working successfully for other sites, and you might want to evaluate whether it's appropriate for you. Also, with UESCs, there is not a rigid contract process. We'll talk about some of the different contracting options available to you with UESCs later in the program. And you want to consider the agency's relationship with the utility. Do you have a representative that you work with, with that utility that is a comfortable person to work with? Have you been getting good customer service with your utility over the years? These are things to think about when you decide whether you want to enter into partnership with an organization.

Slide 101 – Julia Kelley

This slide shows some typical Utility Energy Service Contract offerings. As you can see, a UESC can be made up of technical services, but it can also include financial services like rebates for equipment. The utility company wants to incentivize you to buy particular types of equipment, or maybe they want to help you out with PV systems or something like that, and they offer rebates in different areas. They can also offer project financing, as I mentioned earlier. Now, the technical services that are offered in UESCs kind of look similar to some of the steps involved in doing a UESC. So, they could do an audit step first and walk through the facility with you, then a more detailed feasibility study, followed by an engineering and design package, then the construction and installation. But it could also include different things that you might want to include in the UESC but are not really mandatory, like performance guarantees. There's a key difference between UESCs and EFCCs. With the Super ESPC Contract, those ESCOs are required to guarantee the energy savings that they cite in their proposals. But with he UESC, there is no mandatory guarantee. You might be able to negotiate a guarantee with some of the utility companies, but that's something that you'll need to discuss with them individually, and we'll have more tips on how to do that later in this program. You can also see the training, operations and maintenance services and project management might be included in your UESC.

Slide 102 – Julia Kelley

Other typical utility services include the items listed on this screen. I won't go over each and every one of these with you, but I did want to point out that utility companies – and I do recommend and FEMP recommends that periodically, you meet with your utility company to have a rate analysis done, and perhaps load management assistance. This is where you sit down

and look at the detailed utility rates and make sure that you're getting the best rate for your site that you could possibly earn. And I also want to point out metering. I know that many of you have been working on advanced meters and smart meters under recent legislation, and who better to go to than your utility company to help you with a big metering project. Those types of things can be included in UESC projects as well.

Slide 103 – Julia Kelley

The Energy Policy Act of 1992, in particular Section 152(f) on Utility Incentive Programs, is the key act or legislation that allows federal agencies to do Utility Energy Service Contracts. Under this legislation, agencies are authorized and encouraged to participate in utility programs that are generally available to other customers of that utility. It allows federal agencies to accept all kinds of utility financial incentives, like the rebates I was talking about earlier; goods and services that are generally available to customers; and it also just encourages federal agencies to enter into these types of negotiations with utilities to solve problems at your site and to address the goals that you have for energy efficiency improvements, renewable energy, et cetera. This was all codified as 42 USC 8256.

Slide 104 – Julia Kelley

You will find in this document on your screen – the "Utility Energy Service Contract Enabling" document – many more details than what I'll be able to go over with you this afternoon on legislation, executive actions, legal opinions, additional agency guidance, all pertaining to Utility Energy Service Contracts. And that document – that book – is available for free download from the FEMP website on the bottom of the screen. It was just updated last year to contain even more information to help you should you decide to move forward with a UESC.

Slide 105 – Julia Kelley

This slide just shows a sampling of a few of the legal opinions that you'll find much more detail on in the "Enabling" document's book. For example, there is the legal opinion there from GSA – their authority for extended utility agreements. This enables GSA to set up the area-wide contracts for terms greater than ten years, and those contracts are used by all federal agencies in a utility company service territory to do a UESC agreement with that utility company. And we'll have a few more slides on that later in the program. There's also a legal opinion that you'll find in that "Enabling" document's book from the Department of Energy that is citing the relationship of the anti-deficiency to multi-year contracts under the Utility Incentive Program. And this simply allows you to have these multi-year contracts for UESCs but not to have to have all of the money available to you in the first year of the contract. There's no need to obligate the total estimated cost of the contract in the first year, but all you have to do is have what's necessary to cover annual costs. And there's also another key legal opinion there from GSA that's the exception from the competition in contracting acts – full and open competition. And this allows you to do a sole-source agreement with your serving utility company when you want to do a UESC with them. So, that helps streamline the process.

Slide 106 – Julia Kelley

All right. We're going to move on to another portion of this program, where we take just a quick look at the UESC process.

Slide 107 – Julia Kelley

On this slide, you will see that UESC process just in a one snapshot look, and you'll see that there's three different phases to this process. There's a planning phase, there's a project identification phase and a project implementation phase. And you'll find that your UESC project may not work exactly the way it's described on this screen, but this just gives you an idea of how these can work and gives us something to talk through. So, I can show you a little bit about each of these steps. In the planning phase, one of the things that you do with your team is determine which contract vehicle you want to use, and some of my next slides will talk about those different contract vehicles. And we'll talk a little bit about some of the tips that are special considerations for UESCs along each of these steps of the UESC process in some later slides. But here, just to move you through the steps quickly, you're going to get together with your planning team and do things like determine your appropriate contract vehicle and do some preliminary planning before the utility company ever comes onsite for their audit. Then, you'll move into a project identification phase, where your research includes the utility company audit, where they walk through your site with you and identify energy conservation measures that are appropriate for you. You'll work with them to establish the contract terms and conditions that will help govern your UESC project. Then, there's also, of course, a feasibility study, and that can include or come before the implementation phase, which would include an engineering and design package. And then, the actual construction and installation of the new equipment at your site. And once that is commissioned and operations, then you move into the payment period, assuming you are financing your UESC with the utility company, where you're paying them back over time from savings off the utility bill.

Slide 108 – Julia Kelley

Okay, so, let's take a look at those different contract vehicles that are available to you with UESCs. You've got an area-wide contract, the site-specific contract and the basic ordering agreement.

Slide 109 – Julia Kelley

Here's a little bit more on the UESC area-wide contract. This is the contract vehicle I mentioned earlier, where the General Services Administration has authority to place a blanket contract for utility services with any utility company in the country, and that blanket contract is called an area-wide contract or area-wide agreement. Under that area-wide contract, any federal agency – not just GSA – can use that to place a UESC task order directly under that area-wide contract with their serving utility. And they can have a master agreement under that, where they have different task orders for their UESC to get the UESC project done. If you want to, we do recommend that you work with the utility company on that master agreement and UESC task order language, but while you're doing that you can use the model agreement that is found in the "Enabling" document's book as a template for the master agreement. So, what I'm saying there

is that FEMP and a whole team of utility company representatives and federal agency representatives have worked together to write a template for UESC contract agreements. And that template language is found in the "Enabling" document's book that I cited earlier.

Slide 110 – Julia Kelley

This is a little bit more about GSA's authority under 48 CFR Part 41. This is where they have the authority to set up those area-wide contracts and also to prescribe other policies and methods governing the acquisition and supply of utility services for all federal agencies. So, it enables the GSA to set up those area-wide contracts that other federal agencies can then use, and it gives a broad definition of utility services. So, for them that includes electricity, natural or manufactured gas, water, sewage, et cetera, et cetera.

Slide 111 – Julia Kelley

I wanted to point out that the GSA wants that area-wide contract to be used correctly. So, it is especially set up for projects with a utility company where there are measurable energy or water reductions, or measurable amounts of demand reduction. So, your projects under your UESC contract must be directly related to the use of energy or water or demand reduction. And the reason they issued these criteria is because they found that occasionally, some sites were trying to use a UESC agreement to do things like repave parking lots, paint buildings, put new carpet in buildings. No, that's not what the UESC is for. That's not what the GSA area-wide is for. It's been set up for energy projects.

Slide 112 – Julia Kelley

You also have the option – let's say your utility company does not have an area-wide contract in place with GSA. Not all of them do. No problem. You can still do a UESC with your serving utility company through a site-specific contract. Any site can place these agreements. They can include all your site-specific terms and conditions. So, this is always an available option to you, and you just work directly with that utility company on your task order. Again, you can use the template found in the "Enabling" document's book as your template for this UESC task order.

Slide 113 – Julia Kelley

A third option that's available to you is the basic ordering agreement. This is authorized under FAR Part 16, Services Contract, and it establishes terms and conditions for future contracts to provide services. Any agency can place a BOA, or basic ordering agreement, with their serving utility company and then write specific task orders under that for the different phases of your UESC project. Again, that template in the "Enabling" document's book can serve as your template for this type of contracting arrangement as well. This is used by several federal agencies. I believe the Navy favors using basic ordering agreements, and other agencies do, also.

Slide 114 – Julia Kelley

So, here's just a little bit more about the model agreement. I mentioned earlier, it was developed by Edison Electric Institute, the Department of Defense, Department of Energy and other representatives from different agencies. And it does provide a uniform, approved set of standard contract terms and conditions that's been reviewed and approved by various representatives from public and private sectors. Some people say that it contains up to 80 percent of the necessary terms and conditions for a UESC contract. The rest of those terms and conditions would be specific to your site needs, but it does help provide you with assurance that the language in that template has been successfully used on other UESC projects.

Slide 115 – Julia Kelley

All right. Now, let's take a look – as we move through the UESC projects, we're going to focus just on a few key issues and decisions at various stages in that process.

Slide 116 – Julia Kelley

First of all, let's talk about assembling your acquisition team. This is just like putting together any kind of successful project team, when you think about it. You want to put that team together early to ensure project buy-in and support to reduce turn-around time for approvals and expedite the procurement process, to keep everybody informed of the current plans or future agency plans for your buildings that might have an impact on your project. It also helps you prepare for team turn-over. As you and I know, in the federal sector, people change jobs all the time and they move from one position to another. You might have new people coming on your team that need to understand what's going on with this project, even though they've stepped into the project somewhere in the middle. And so, if you plan ahead you can document your project very well and help those new people come on board smoothly.

Slide 117 – Julia Kelley

Who should be on your acquisition team for your UESC project? There are a lot of different folks that need to have representation on this acquisition team and need to be brought up to speed about what this project entails. Those people would include the site decision-makers for your project; anyone that's going to have sign-off authority or approval for your project at every step of the way; technical staff that understand what energy conservation measures are going to be appropriate for your site and what's going on with the buildings at your site; procurement personnel that can help you get this contract in place with the utility company; legal representation; budget representation; environmental specialists; tenants that might be on your site and could be impacted by the project; operations and maintenance staff that understand exactly where the trouble spots are with the equipment in your facilities and can help make sure that those get addressed in the UESC project. You can also invite a FEMP project facilitator to help you with this project. We can offer you a variety of services. Our FEMP project facilitator can walk with you every step of the way through the project. And right now, these FEMP project facilitators are available to you at no additional cost. So, you don't have to pay FEMP back, or another federal agency back. We can assign a FEMP project facilitator to your project. You might also have other special groups at your site that would be appropriate for your project, and you'll have to think about those so you don't leave anybody out.

Slide 118 – Julia Kelley

Let's touch on a few potential conflicts and unique issues associated with UESCs. One thing that we have noticed over time is that you need to be clear up front with the budget planners and decision-makers and the managers at your site – that your utility budget will stay the same as it otherwise would have been had you not done the UESC because project payments – assuming you're financing the project – will come from the savings from this project. If you don't make that clear at the very beginning, you'll find that some people are saying, "Hmm. They're getting ready to do a UESC and save a lot of energy at this site. Let's cut their utility budget down. They won't need as much in their utility budget." And, of course, that's not true if you're financing your project. You also want to carefully consider any conflicts involving known and potential mission or facility-usage changes. For example, you might have a building that's getting ready to be slated for demolition and you want to bring that issue to light so that the utility company knows about it and doesn't try to include that building in their UESC project planning with you. We also have an alternatively financed project going on here at Oakridge National Laboratory, and we have one building that is being redone to be all office space instead of a mixture of office space and laboratory space, while a new building is being built for the laboratory space. And if we had not told our alternative financing partner about that change, then they're planning for energy conservation measures for that building – would have been not helpful and not up-to-date. So, keeping all the parties aware of different changes like that really helps. And then, you want to make sure that your UESC addresses unique facility issues that you might have. You'll have to take into account restricted access facilities. Maybe there's some buildings that you simply can't have the utility company folks walk through as part of the audit. You may have other special requirements for laboratory facilities, archives and different kinds of tenant operations.

Slide 119 – Julia Kelley

When you bring your acquisition team together, have them sit down and discuss what your project goals are. Of course, everybody wants to do great things like solve existing problems with your site; make infrastructure improvements; improve operations and maintenance; and, of course, save energy. But what are the specifics for your site that you want to make sure you accomplish? Be sure and pull the team together to get those written down so that you can actually accomplish them, so you've got them clearly defined. And then, that helps you accomplish those goals.

Slide 120 – Julia Kelley

As you have your acquisition team together for your project planning, you've got three major parameters that you want to consider. And we've talked a little bit about site – about how changes in facility mission will impact your project – but you want to hone in on what buildings that you definitely want to include in your UESC. So, that's a parameter to discuss and plan for, and then, technologies. You want to hone in on what you consider to be absolutely required energy conservation measures for your site. You maybe got some old boilers you want to be sure and replace. You've got some old lighting systems that you know are outdated and need to

be replaced. Then, you might have other potential energy conservation measures that you'd like to get addressed and definitely want the utility to at least consider – maybe some PV systems or other renewable energy projects. Then, you have a third parameter, and that is the contract term. Depending on which agency you are in, they will have different rules about how many years long your UESC contract can run and you need to adhere to the rules for your federal agency that your contracting officer can share with you. And those rules tell you, "Here's how many years long your project or contract can run." And so, you have to fit the projects into that timeframe.

Slide 121 – Julia Kelley

As part of your pre-planning for your UESC project, collect facility data and be prepared to present it to the utility company. You'll want to have on hand historical utility data. No, why am I asking you to collect utility data and give it to your utility company? Wouldn't they already have that? Well, yes. Your electric utility company might have your electric utility data, but they might not be the same company that's providing you with natural gas service or with your water service. So, you need to collect these kind of information and be prepared to share them with whatever utility company you choose to work with. You also want to have information about the energy use of your buildings and equipment in those buildings that you have available, any data that you have on anticipated facility and utility changes and any past audit information. If you have an audit report that you own – perhaps one that FEMP did for you through the Save Energy audit program or the Alert program – then by all means, collect those reports and share them with the utility company.

Slide 122 – Julia Kelley

Also, as part of your project planning, it's time to prioritize your facility requirements. So, you want to figure out what your specific facility needs are and their conditions and any constraining issues that are specific to your site, such as facility configuration requirements, any backup systems that you need. If you have limited in-house resources to help the utility company, then that's a consideration for you. You may have union considerations at your site or other items that are specific to your site that may arise as issues during this project. Let's get those all out on the table and discuss them during project planning.

Slide 123 – Julia Kelley

When you have your acquisition team together, including your technical leads and your operations and maintenance personnel, it's time to at least come up with a preliminary list of the potential energy conservation measures you'd like to see in your project. I've listed just some broad areas on this slide. There may be others that you can think of, but come up with as big a list that doesn't limit that utility company as possible so that they can kind of look for a lot of different options for you.

Slide 124 – Julia Kellev

You also want to think during your project planning about performance and savings verification. And what it does for your project is provide you with some level of assurance that you're going

to get the energy savings that you were expecting out of this project. And there's all different levels of performance assurance or savings verification, with the most robust being a guarantee like what the energy service company provide under ESPCs.

Slide 125 – Julia Kelley

So, we do recommend that when you do a UESC, you develop some sort of performance-monitoring plan. So, you identify a means of measuring or calculating the energy being consumed and verifying the savings or avoided cost from those measures. FEMP has some resources that can help you do this. First of all, of course, the FEMP M&V guidelines, and then also there are specific FEMP guidance documents available on the FEMP website on developing a performance-monitoring plan just for UESC. And you also might want to see the performance assurance for multi-year contracts under the Utility Incentive Program. That is the specific guidance for UESC project performance.

Slide 126 – Julia Kellev

Commissioning is a key way of making sure you get the energy savings that you anticipate from your UESC project. This is a process for achieving, verifying and documenting that the performance of a building and its systems meet their original design intent and their operational needs. And this process of commissioning really begins with the planning phase of the project and extends through all the phases of the project, right to when the equipment is installed and originally commissioned – to say, "Yes, this is working as we anticipated," – all the way through the operation and use of that equipment. Then, FEMP has available a building commissioning guide and specifications on their website and other tools that can help you with commissioning planning.

Slide 127 – Julia Kelley

This is a slide that was – and if you'll push the button one more time. This is a slide that talks about the importance of having some way of assuring continued savings from the energy conservation measures that are installed at your site. So, you get the greatest percentage of savings realized in the most years after the project is completed if you have good verification of those savings, as shown in the yellow bar at the top of the screen. If you have a poor verification plan and wind up doing a poor job of verifying those savings, then your energy savings will drop off dramatically. And this is something that we have observed over time with both ESPCs and UESCs. Millard Carr is someone who has worked with us at FEMP for many years and has a lot of experience, particularly with DOD energy projects. And his personal observation is that the drop-off and savings is very steep if you don't have good performance verification. So, two key benefits to assuring continued savings are that you get the initial savings level that you want, and you also have that persistence of savings over the years that the equipment is operational at your side.

Slide 128 – Julia Kelley

FEMP recommends that, in a UESC project, you do all you can. Include all opportunities available through the UESC. Have your utility company look at energy efficiency opportunities, water efficiency, alternative electric or gas supply, on-site power generation like CHP, renewables, renewable power purchases. Have them incorporate a robust approach to helping you evaluate which measures make sense for your site.

Slide 129 – Julia Kelley

Bundling is an important aid to UESC projects. Bundling is a term that we use to describe where you combine long- and short-term payback energy conservation measures at a certain facility in a single project package that is a comprehensive project package. And how this works is, you've got a certain amount of time that your contracting officer has said, "We'll let you have your contract run 'X' number of years." And you have some energy conservation measures that are going to pay back quickly, like a lot of times sliding measures and water efficiency measures are kind of low-hanging fruit, short-term payback items. And then, you have some other measures that you want to get done at your site, like large boiler-replacement projects or PV systems or other things that maybe have a longer payback. If you bundle those different kinds of energy conservation measures in one project package, you can get more of those big-ticket items done because you're using the short-term payback measures to help make the long-term payback measures fit within that contract term. So, it's a bundled comprehensive project package rather than just cherry-picking. What we don't recommend is where – we call it "cherry-picking", where you just say, "You know what, utility company? I just want to do a lighting project. Let's just go through my whole site and do a lighting project, and that'll be a great project and we'll get lots of energy savings." Well, you can do that, but we think that's a mistake. Have them look at all the different energy conservation measures available and bundle some more expensive items together with those lighting projects, or you'll be losing opportunities to do some of those long-term payback energy conservation measures in a UESC.

Slide 130 – Julia Kelley

Also, remember that the agency is required to take a fuel-neutral approach. If a technology is cost-effective and results in energy savings, it should be considered without regard to fuel source. So, make sure that your electric company or your gas company – whoever you're working with – is taking that fuel-neutral approach and not pushing one route or another with you. Be sure and question that when you see their proposals.

Slide 131 – Julia Kellev

So, this is a diagram on the cost of delaying a project. This is a result of a study that Oakridge National Lab did a few years ago for FEMP. And it showed that there is a cost in delaying project implementation, resulting in the loss of lifecycle savings. By all means, if you have regular appropriations money in your pocket, go ahead and use that money to do an energy project at your site. That's your best and cheapest method to get your project done. But if you don't have appropriations money in your pocket to do a project your next best option is to do some form of alternative financing, whether it be ESPCs or UESCs, because there's a significant cost in delaying your project and saying, "You know, we don't have appropriations money right

now, but we're just going to wait and not do an energy project until some time in the future, when we hope to have appropriations money." That results in increased expenses on operations and maintenance at your site, more equipment falling apart. So, your best option if you don't have appropriations dollars available today is to move forward with alternative financing. And, of course, the worst option you can take is to do nothing.

Slide 132 – Julia Kelley

Follow-on projects are typical with utility energy service contracts. After you get your first project underway and are commissioning that equipment, you may start planning right then for a follow-on project – maybe looking at other facilities at your site. That's perfectly typical and we encourage you to do that.

Slide 133 – Julia Kelley

This is the final portion of this portion of your Webinar. I just have a few slides on available tools and resources.

Slide 134 – Julia Kelley

First of all, I've made several references to the FEMP website, and I do encourage you to take a look at that because it has a rich wealth of resources available to you. There's a section on financing mechanisms, and within that section a portion on Utility Energy Service Contracts.

Slide 135 – Julia Kelley

Also, take a look at the General Services Administration website. It's listed on this screen because it can tell you more about GSA's area-wide and which utility companies have an area-wide contract available. FEMP also has a UESC video that is a great short video that you can show to upper management at your site or other people that you want to educate about UESCs. It's available for a free download from the FEMP website.

Slide 136 – Julia Kellev

FEMP, as I mentioned earlier, offers all kinds of direct project assistance, from technical experts that can help you get your project underway. We can hold meetings with you and your utility partner to help facilitate the beginnings of those relationships. We can provide a project facilitator to walk you through every step of the project. We can help advise you on topics like measurement and verification; some contracting expertise, although we cannot serve as the contracting officer for your project. That has to be someone within your agency. Technical proposal reviews – if you just want to stop and review the proposals, we have people that look at these types of proposals over and over again. And, of course, we offer different kinds of workshops – both these Webinars and classroom workshops as well.

Slide 137 – Julia Kelley

FEMP Focus is an electronic newsletter that FEMP issues periodically. It's available for a free subscription from the website at the bottom of your screen, and it will include case studies about UESCs as well as announcements about future training events.

Slide 138 – Julia Kelley

All right, I'm Julia Kelley at Oakridge National Laboratory on the FEMP Utility Team. My contact information is on the screen along with that of David McAndrew, who is the FEMP Headquarters contact for the FEMP Utility Program who manages FEMP's efforts in the utility program and UESC area.

Slide 139 – Doug Culbreth

Let me thank the panelists – Joyce and Chandra and Julia – great job. And we would encourage you to contact people if you have further questions. Let me leave you with a recommendation and a point here of marketing. Whenever you're thinking about doing any type of alternative financing project, please contact your FFSs or any of the other contacts that you have before you today to be sure that you're going down the process in the right way. So, if there are no further questions or comments from any of the panelists or Susan – thank you for your help – I think we will close out.

[End of Audio]